

The Surf Clam ITQ Management: An Evaluation¹

The U.S. surf clam offshore fishery, primarily off the Mid-Atlantic region, was the first fishery managed with a limited entry and individual transferable quota (ITQ) system under the Magnuson Fishery Conservation and Management Act (MFCMA). A vessel limited entry system was implemented for the period 1977-1990 and an individual transferable quota system from 1990 to date.

In 1977, the surf clam offshore fishery was brought under Federal management because of over-exploitation and natural disaster. The surf clam biomass had declined to a historic low after a period of high exploitation in the early 1970's, yet new capital and vessels continued to enter the fishery. This over-exploitation was aggravated by an anoxic habitat condition off the New Jersey coast in 1976 which destroyed an estimated 25% of the New Jersey offshore surf-clam fishery and ruined almost 70% of the entire fishery by the fall of that year.

The 1977 Federal surf clam management system established a limited entry program consisting of a vessel moratorium, an annual fishery catch quota, limitations on vessel fishing hours, catch logbooks, and vessel permits. Other measures such as minimum clam size were added in later years. Under the vessel moratorium, only vessels that directed their fishing on surf clams between November 1976 and November 1977 were allowed to fish for surf clams, with provisions to qualify surf clam vessels that were already under construction. The fishery quota was established and set with a range of 1.8-2.9 million bushels for the Mid-Atlantic area and 0.025-0.1 million bushels for the New England area. Allowable fishing

time was specified to maximize fishing seasons. However, the allowable fishing time was steadily shortened thereafter due to continuous increases in the fishing power.

When first instituted in 1977, the vessel moratorium program under the limited entry system was authorized only for 1 year with the intent that the program would be replaced with an alternative one such as a stock certificate program. However, the moratorium program was continued until 1990 while an alternative program was under development. During that time, the allowable fishing time was reduced substantially to a historic low: a surf clam vessel was only permitted to fish 6 hours every other week by 1990. This resulted in low capacity utilization of fishing vessels and economic inefficiency of fishing firms. Under the moratorium, the administration of the fishing time on the basis of individual vessels was also an administrative burden for the Federal government. Consequently, the Federal government, the Mid-Atlantic

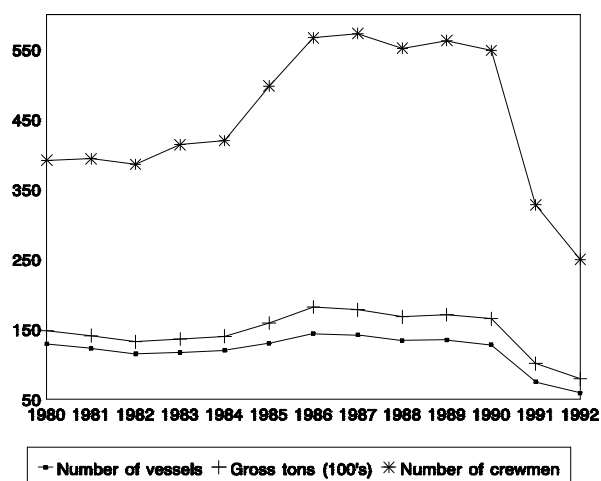


Figure 1
The offshore surf clam fleet.

¹This is an excerpt from an NMFS unpublished manuscript entitled "The performance of U.S. Atlantic surf clam and ocean quahog fisheries under limited entry and individual transferable quota systems" by Stanley D. Wang and Vuong H. Tang, NMFS Northeast Regional Office, Gloucester, Mass., Jan. 1994.

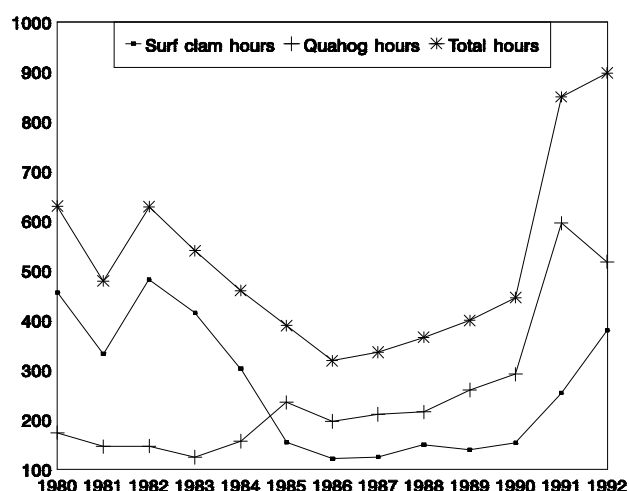


Figure 2
Fishing hours per offshore surf clam vessel.

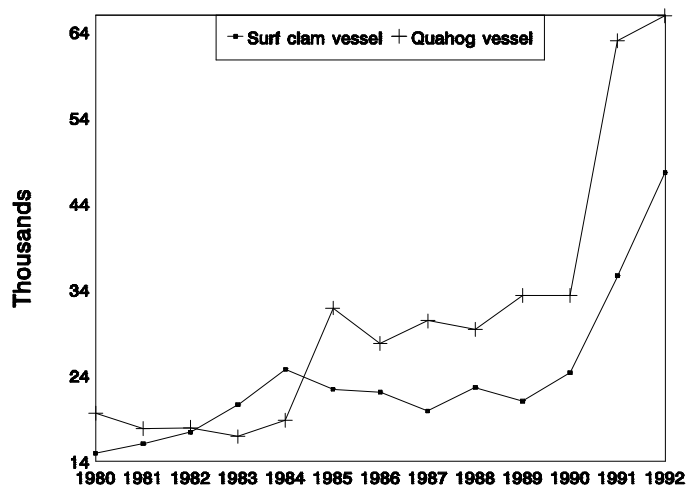


Figure 3
Landings per offshore surf clam vessel.

Fishery Management Council, and the surf clam fishing industry were not satisfied with the vessel moratorium program. Finally, the vessel moratorium program and the entire limited entry system were replaced with an individual transferable quota (ITQ) system in October 1990.

Initial ITQ shares of the fishery quota were issued to vessel owners based on a formula of historical catches (80%) and vessel size (20%). The ITQ shares can be traded or leased to any person or entity without preconditions of vessel owner-

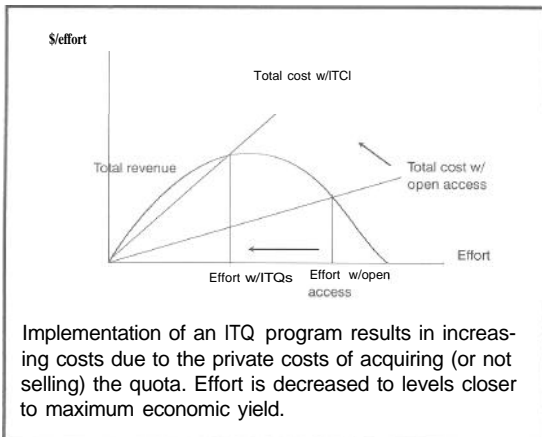
ship or limits on the amount of ITQ shares owned by an entity. Vessel operators may fish any time with ITQ certificates. In addition, former effort control measures as well as minimum clam size regulations have been eliminated.

Substantial capital savings have accrued to the surf clam offshore fishery under the ITQ system. The surf clam offshore fleet shrank from 128 to 59 vessels (Figure 1) within 2 years of the implementation of the ITQ system in 1990. This represents a 54% reduction in fleet and a historical low since 1980. Total gross tonnage of the surf clam fleet shrank by 52%. A comparison between the 1986 peak level of capitalization under the limited entry system and the 1992 level under the ITQ system reveals that the capital savings under the ITQ system amounted to 85 vessels, totaling 9,950 gross tons, and about 320 crew members. This means that more capital and labor became available for employment in the other industries to benefit the U.S. economy. Of course, some economic and social dislocation has occurred in the process.

The ITQ system allowed for the consolidation of crew and retirement of vessels and resulted in a substantial increase in the capacity utilization of fishing vessels remaining in the fleet. For example, the surf clam fishing hours per vessel increased by one and a half times, from 154 hours in 1990 under the limited entry system to 380 hours in 1992 under the ITQ system (Figure 2).

The ITQ system also improved vessel productivity to record levels. The 1992 surf clam catch per vessel under the ITQ system was 47,656 bushels, an increase of almost 100% from the 1990 catch level under the limited entry system (Figure 3). Average catch per gross ton under the ITQ system exhibited an increase as well. As a result, the ITQ system should lower fishing costs and improve earnings of the remaining surf clam fleet.

The ex-vessel price of surf clams declined as the landings of surf clams increased during the period from 1980 to 1992 (Figure 4). The 1992 ex-vessel price under the ITQ system was the lowest for the period. The surf clam price continued to decline from 1987 to 1992 even with the drastic decline in the landings in 1987. This continual price decline is partially attributable to increasing substitution by consumers of ocean quahogs for surf clams. The price decline may also be associated with high buyer concentration in the ex-vessel market.



A small number of buyers has dominated the surf clam market. The market shares of large surf clam buyers declined steadily during the late period (1985-90) under the limited entry system, but increased again under the ITQ system (Figure 5). The 1992 combined market share of the three largest buyers was approximately 75 %, a historic high since 1986, indicating the surf clam ex-vessel market became more concentrated under the ITQ system.

Under the ITQ system, ownership of ITQ shares by processors has replaced the ownership of vessels as a way to secure the supply of surf clams as raw materials. Prior to the ITQ system, only surf clam vessels under the limited entry program were allowed to fish in the Mid-Atlantic area, the predominant fishing ground. To secure the supply of surf clams, vertically-integrated processors owned and operated surf clam vessels. Currently, however, any US. registered vessel is allowed to fish surf clams under the ITQ system as long as ITQ certificates are owned. As a result, some of the processors have abandoned their vessel operations and focused on securing the ownership of the ITQ shares.

Not surprisingly, the number of unique ITQ owners has declined since the implementation of the ITQ system. The initial surf clam ITQ shares were allocated among 67 vessel owners². By March 1992, the number of the ITQ owners had declined to 50 unique owners. Between October 1990 and March 1992, there was a slight increase in the concentration of ITQ ownership. During

²In October 1990, 161 vessels received the original ITQ shares. Of these, 154 vessels had surf clam ITQ's and 117 owned ocean quahog ITQ's. However, the number of unique owners is smaller than the number of eligible vessels due to multi-vessel ownership.

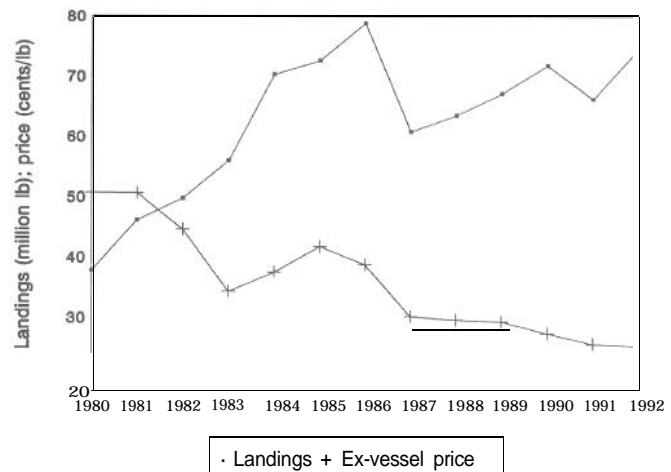


Figure 4
Surf clam landings and real ex-vessel price (base year= 1980).

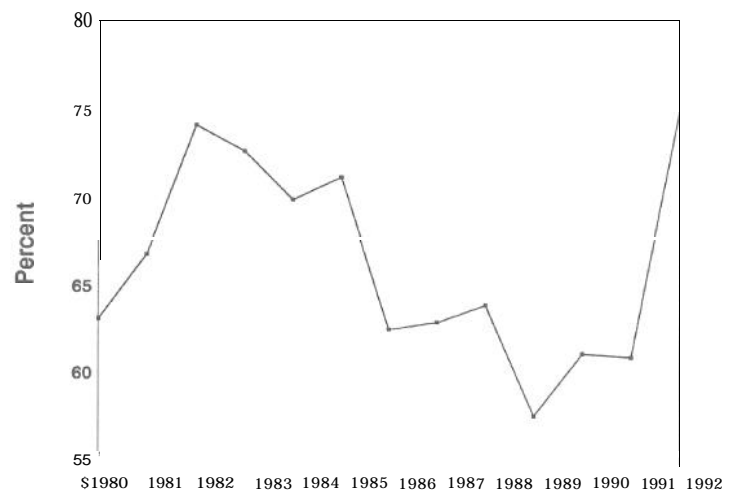


Figure 5
Surf clam buyer concentration: the three largest buyers' share.

this period, the three largest owners' ITQ shares rose from 51.3% to 58.1%.

Based on an NMFS interview with some industry members in February 1992, the surf clam ITQ's were traded for about \$20.00 a bushel and leased for about \$4.00 per bushel annually. Accordingly, the offshore surf clam resource with a quota of 2.85 million bushels was evaluated at about \$57 million in 1992. The 1992 rental value of the surf clam ITQ shares was estimated to about \$11.4 million, resource rent captured en-

tirely by the industry rather than being dissipated due to lack of property rights.

In summary, the 1977 limited entry system consisting of a vessel permit moratorium and a fishery quota was not sufficient to deal with the issues of overcapitalization and its associated inefficiency in the offshore surf clam fisheries. Under the limited entry program, even though the fishery quota was relative stable, fishing capacity increased continually because vessel sizes were increased, newer and more efficient fishing gears were adopted, and fishing labor was more intensively employed. The ITQ management system,

implemented in 1990, made it possible for fishing firms to use and respond to market mechanisms and forces in their business operation. The result is that the fishing industry has reduced its overcapitalization and achieved greater economic efficiency. Within 2 years of the implementation of the ITQ system, the fishing fleet reduced its size by 54% and vessel capacity utilization and productivity rose to a record level. Further, the surf clam resource rent created under the ITQ system amounted to \$11.4 million for the original vessel owners in 1992.